

**Appendix**  
**Victim–Offender Relationship and the Emotional, Social,**  
**and Physical Consequences of Violent Victimization**  
**Hullenaar et al.**

**Appendix Table 1.** Primary Measures and NCVS Survey Items

<b>Measure</b>	<b>Survey item</b>
<b>Outcomes</b>	
Injury	What were the injuries you suffered, if any? Anything else?
Emotional distress	How distressing was being a victim of this crime to you? Was it not at all distressing, mildly distressing, moderately distressing, or severely distressing?
Social distress	
(a) Problems with school, work, or professional relationships	Being a victim of crime affects people in different ways. Next I would like to ask you some questions about how being a crime victim may have affected you. Did being a victim of this crime lead you to have significant problems with your job or schoolwork, or trouble with your boss, coworkers, or peers?
(b) Problems with family and friends	Did being a victim of this crime lead you to have significant problems with family members or friends, including getting into more arguments or fights than you did before, not feeling you could trust them as much, or not feeling as close to them as you did before?
Long-term physical problems	Did you experience any of the following physical problems associated with being a victim of this crime for A MONTH OR MORE? Did you experience...(headaches, trouble sleeping, changes in eating or drinking habits, stomach aches, fatigue, high blood pressure, muscle tension/back pain, or some other physical problem)?
Long-term emotional problems	Still thinking about your distress associated with being a victim of this crime did you feel any of the following ways for A MONTH OR MORE? Did you feel...(worried/anxious, angry, sad/depressed, vulnerable, violated, distrust in people, unsafe, or some other way)?
<b>Victim–offender relationship</b>	
Single offender victim–offender relationship	How did you know the offender? For example, was the offender a friend, cousin, etc.?
Multiple offender victim–offender relationship	How did you know them [ <i>sic</i> ]? For example, were they friends, cousins, etc.?

NCVS, National Crime Victimization Survey.

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**Appendix Table 2.** Proportions, Means, and SDs of Study Variables by Victim–Offender Relationship, NCVS (2008–2018)

Variables	Study sample ( <i>n</i> =16,723)	Victim–offender relationship		
		FIPV ( <i>n</i> =3,630)	Acquaintance ( <i>n</i> =5,629)	Stranger ( <i>n</i> =7,463)
Outcomes				
Injury	0.26	0.42	0.23	0.20
Emotional distress	0.53	0.73	0.52	0.45
Social distress	0.28	0.49	0.31	0.15
Long-term physical problems <sup>a</sup>	2.10 (2.62)	2.79 (2.73)	2.02 (2.62)	1.59 (2.45)
Long-term emotional problems <sup>a</sup>	4.46 (2.69)	5.01 (2.44)	4.34 (2.78)	4.11 (2.78)
Victim characteristics				
Female	0.50	0.74	0.51	0.37
Age	34.2 (17.8)	36.0 (16.4)	32.3 (19.5)	34.7 (17.8)
Race/ethnicity				
Non-Hispanic White	0.62	0.65	0.65	0.59
Non-Hispanic Black	0.15	0.15	0.15	0.15
Non-Hispanic other/mixed	0.07	0.07	0.07	0.08
Hispanic	0.16	0.13	0.14	0.19
Education				
Less than high school	0.29	0.23	0.39	0.24
High school equivalent	0.23	0.26	0.20	0.23
Some college	0.30	0.35	0.25	0.31
Bachelor’s or more	0.18	0.15	0.16	0.22
Economic status index	−0.06 (1.17)	−0.19 (1.13)	−0.01 (1.27)	−0.02 (1.19)
Married	0.24	0.20	0.21	0.28
Urbanicity of household				
Rural	0.14	0.20	0.16	0.09
Suburban	0.45	0.45	0.48	0.42
Urban	0.42	0.36	0.36	0.49
Region of household				
Northeast	0.16	0.13	0.17	0.16
Midwest	0.24	0.25	0.26	0.21
South	0.32	0.37	0.31	0.31
West	0.28	0.25	0.26	0.32
Repeat victimization	0.24	0.33	0.28	0.17
Offender characteristics				
Offender age				
Juvenile(s) only	0.17	0.08	0.30	0.13
Juveniles and adults	0.03	0.00	0.03	0.04
Adult(s) only	0.80	0.92	0.67	0.84
Offender sex				
Female(s) only	0.19	0.23	0.26	0.13
Mixed sex	0.05	0.03	0.05	0.05
Male(s) only	0.76	0.74	0.69	0.82
Victimization characteristics <sup>b</sup>				
Multiple offenders	0.18	0.07	0.07	0.04
Weapon				
No weapon	0.75	0.82	0.81	0.67
Firearm	0.09	0.05	0.05	0.14
Other weapon	0.16	0.13	0.14	0.19
Sexual violence	0.06	0.08	0.08	0.05
Third party present	0.61	0.45	0.67	0.64
Location				
Private residence	0.47	0.88	0.46	0.28

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School/work site	0.24	0.02	0.38	0.24
Open area	0.16	0.04	0.08	0.27
Other area	0.14	0.06	0.09	0.21
Financial loss	103.4 (1524.2)	138.8 (2106.5)	44.1 (643.6)	130.9 (1659.5)
Sample size	16,723	3,630	5,629	7,463

*Note:* Proportions and means presented. Means are presented for long-term physical problems, long-term emotional problems, the victim's age, and financial loss. SDs are given in parentheses only for interval measures. Estimates based on imputed and weighted data.

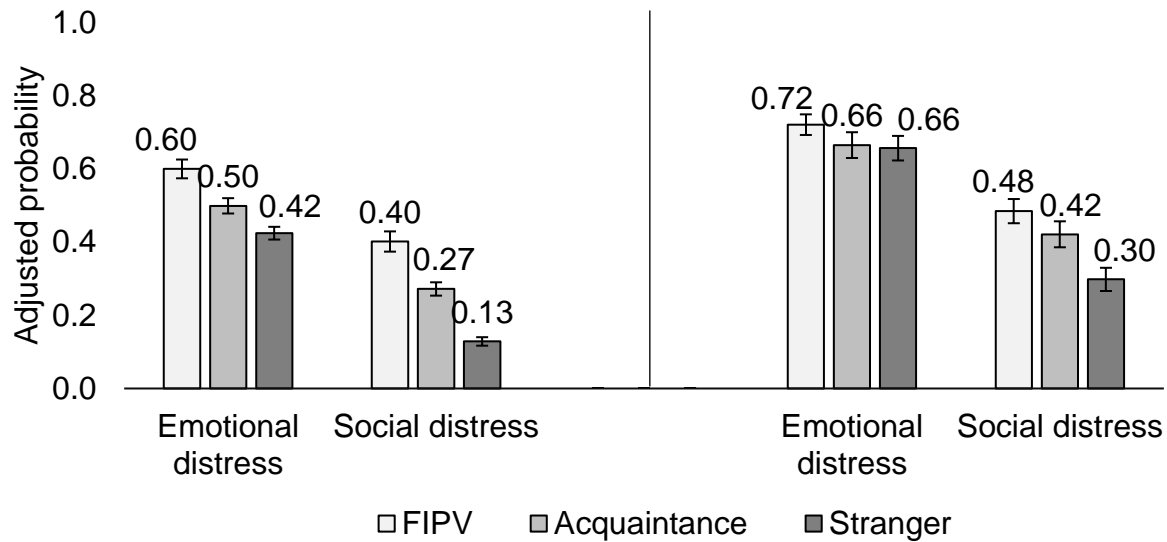
<sup>a</sup>Estimates of long-term physical and emotional problems are available only for victims who reported emotional or social distress ( $n=8,675$ ).

<sup>b</sup>Victimization characteristics were used only in the multiple imputation procedures.

NCVS, National Crime Victimization Survey; FIPV, Family/intimate partner violence.

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**Appendix Figure 1.** Adjusted probabilities of emotional distress and social distress across victim–offender relationships, by victim injury status.

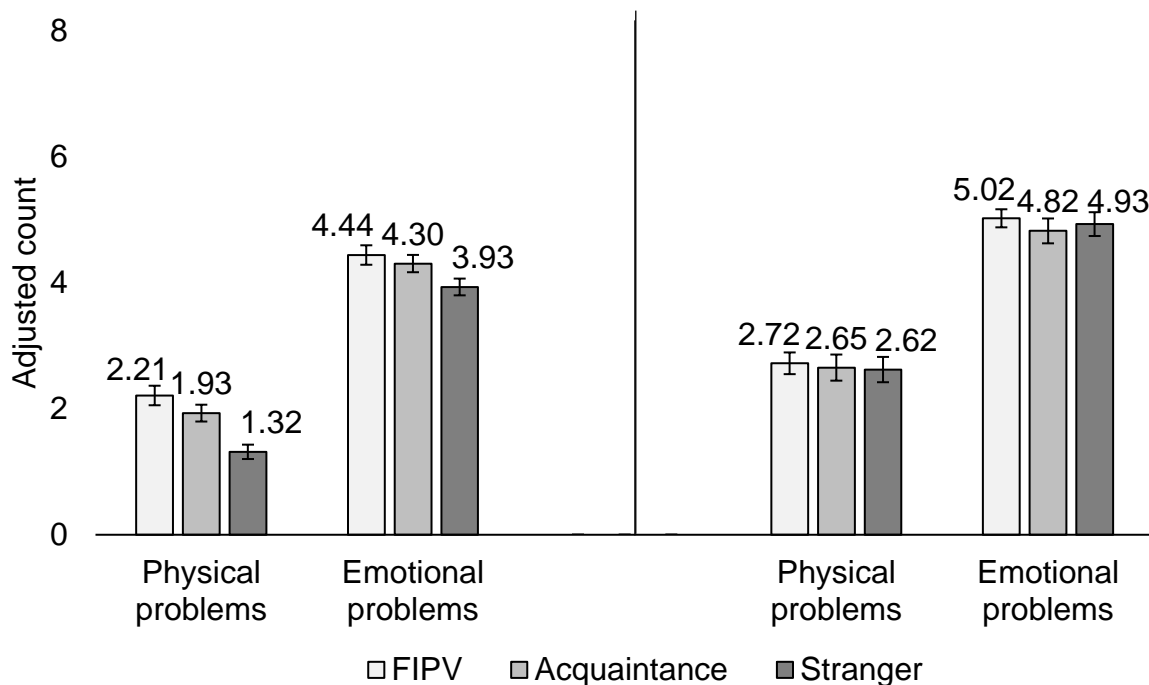


*Note:* 95% CIs presented. Sample includes all victimizations ( $n=16,723$ ). Estimates adjusted for covariates.

FIPV, Family/intimate partner violence.

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**Appendix Figure 2.** Adjusted counts of long-term physical problems and long-term emotional problems across victim–offender relationships, by victim injury status.



*Note:* All estimates adjusted for covariates. 95% CIs presented. In violence involving no victim injury, victims reported more long-term physical and emotional problems when they knew the offender (FIPV or Acquaintance) than when they did not know the offender (Stranger). In violence involving victim injury, there were no significant differences in physical or emotional problems between victim-offender relationships.

FIPV, Family/intimate partner violence.

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**Appendix Table 3.** Complete Models of Emotional and Social Distress, NCVS (2008–2018)

<b>Independent variables</b>	<b>Emotional distress RR (95% CI)</b>	<b>Social distress RR (95% CI)</b>
Injury (vs no injury)	<b>1.17*** (1.11, 1.23)</b>	<b>1.15** (1.06, 1.26)</b>
Victim–offender relationship (vs FIPV)		
Stranger	<b>0.71*** (0.67, 0.75)</b>	<b>0.32*** (0.29, 0.36)</b>
Acquaintance	<b>0.83*** (0.78, 0.88)</b>	<b>0.68*** (0.61, 0.75)</b>
Injury x relationship (vs no injury x FIPV)		
Injury x stranger	<b>1.29*** (1.19, 1.40)</b>	<b>1.92*** (1.64, 2.25)</b>
Injury x acquaintance	<b>1.11* (1.02, 1.20)</b>	<b>1.28*** (1.12, 1.47)</b>
Victim characteristics		
Female	<b>1.50*** (1.43, 1.58)</b>	<b>1.49*** (1.36, 1.62)</b>
Age	1.00 (0.98, 1.02)	<b>0.95* (0.92, 0.99)</b>
Age <sup>2</sup>	1.00 (1.00, 1.00)	<b>1.00* (1.00, 1.00)</b>
Age <sup>3</sup>	<b>1.00† (1.00, 1.00)</b>	<b>1.00** (1.00, 1.00)</b>
Race/ethnicity (vs non-Hispanic White)		
Non-Hispanic Black	<b>0.95† (0.90, 1.01)</b>	1.02 (0.92, 1.14)
Non-Hispanic other/mixed	1.01 (0.94, 1.08)	<b>1.14* (1.01, 1.28)</b>
Hispanic	1.01 (0.95, 1.07)	<b>1.10† (1.00, 1.20)</b>
Education (vs less than high school)		
High school equivalent	1.00 (0.94, 1.06)	0.97 (0.88, 1.08)
Some college	<b>0.93* (0.88, 0.99)</b>	1.01 (0.92, 1.11)
Bachelor's or more	<b>0.93* (0.87, 0.99)</b>	<b>0.87* (0.77, 0.98)</b>
Economic status index	<b>0.95*** (0.93, 0.97)</b>	<b>0.95** (0.91, 0.99)</b>
Married (vs not married)	0.97 (0.92, 1.01)	0.94 (0.87, 1.02)
Urbanicity of household (vs rural)		
Suburban	1.04 (0.98, 1.10)	<b>1.09† (1.00, 1.19)</b>
Urban	1.00 (0.94, 1.06)	0.98 (0.89, 1.08)
Region of household (vs Northeast)		
Midwest	0.97 (0.91, 1.04)	1.06 (0.95, 1.19)
South	<b>0.94† (0.89, 1.00)</b>	<b>1.11† (1.00, 1.23)</b>
West	1.03 (0.96, 1.09)	<b>1.12* (1.01, 1.25)</b>
Repeat victimization (vs not repeat)	0.98 (0.94, 1.02)	<b>1.12** (1.05, 1.20)</b>

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Offender characteristics		
Offender age (vs juvenile(s) only)		
Juveniles and adults	1.15 (0.87, 1.52)	<b>1.47† (0.97, 2.22)</b>
Adult(s) only	<b>1.16† (1.00, 1.35)</b>	0.95 (0.75, 1.21)
Victim age x offender age		
Victim age x juveniles and adults	1.00 (1.00, 1.01)	1.00 (0.99, 1.02)
Victim age x adult(s) only	1.00 (1.00, 1.00)	<b>1.01* (1.00, 1.02)</b>
Offender sex (vs Male(s) only)		
Female(s) only	1.02 (0.93, 1.12)	<b>1.19* (1.02, 1.38)</b>
Mixed sex	<b>1.16† (1.00, 1.35)</b>	1.22 (0.94, 1.58)
Victim sex x offender sex (vs male x male(s) only)		
Female x female(s) only	<b>0.85** (0.76, 0.95)</b>	<b>0.84* (0.70, 1.00)</b>
Female x mixed sex	0.98 (0.82, 1.16)	0.97 (0.72, 1.30)
Year fixed effects	X	X
Sample size	16,723	

Note: Boldface indicates statistical significance († $p < 0.10$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ).

NCVS, National Crime Victimization Survey; RR, risk ratio; FIPV, family/intimate partner violence.

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**Appendix Table 4.** Complete Models of Physical and Emotional Symptoms, NCVS (2008–2018)

<b>Independent variables</b>	<b>Physical symptoms SFR (95% CI)</b>	<b>Emotional symptoms SFR (95% CI)</b>
Injury (vs no injury)	<b>1.23*** (1.13, 1.34)</b>	<b>1.12*** (1.08, 1.17)</b>
Victim–offender relationship (vs FIPV)		
Stranger	<b>0.60*** (0.53, 0.66)</b>	<b>0.89*** (0.84, 0.93)</b>
Acquaintance	<b>0.87** (0.79, 0.96)</b>	0.97 (0.92, 1.02)
Injury x relationship (vs no injury x FIPV)		
Injury x stranger	<b>1.62*** (1.41, 1.86)</b>	<b>1.11** (1.04, 1.18)</b>
Injury x acquaintance	<b>1.12† (0.98, 1.27)</b>	0.99 (0.93, 1.06)
Victim characteristics		
Female	<b>1.54*** (1.42, 1.67)</b>	<b>1.27*** (1.22, 1.32)</b>
Age	<b>1.05*** (1.04, 1.06)</b>	<b>1.01*** (1.01, 1.02)</b>
Age <sup>2</sup>	<b>1.00*** (1.00, 1.00)</b>	<b>1.00*** (1.00, 1.00)</b>
Race/ethnicity (vs non-Hispanic White)		
Non-Hispanic Black	0.98 (0.89, 1.07)	1.02 (0.98, 1.07)
Non-Hispanic other/mixed	<b>1.17** (1.05, 1.30)</b>	1.04 (0.99, 1.09)
Hispanic	1.03 (0.94, 1.13)	<b>1.04* (1.00, 1.09)</b>
Education (vs less than high school)		
High school equivalent	1.00 (0.90, 1.10)	0.97 (0.93, 1.01)
Some college	0.94 (0.85, 1.03)	<b>0.94** (0.90, 0.98)</b>
Bachelor's or more	<b>0.89† (0.80, 1.00)</b>	<b>0.91*** (0.87, 0.96)</b>
Economic status index	<b>0.87*** (0.83, 0.90)</b>	<b>0.95*** (0.94, 0.97)</b>
Married (vs not married)	0.99 (0.92, 1.07)	<b>0.96* (0.93, 1.00)</b>
Urbanicity of household (vs rural)		
Suburban	1.07 (0.97, 1.17)	<b>1.04† (1.00, 1.09)</b>
Urban	1.02 (0.92, 1.12)	<b>1.06* (1.01, 1.11)</b>
Region of household (vs Northeast)		
Midwest	<b>1.18** (1.06, 1.30)</b>	1.03 (0.98, 1.08)
South	<b>1.15** (1.04, 1.27)</b>	<b>1.05* (1.00, 1.10)</b>
West	<b>1.16** (1.05, 1.29)</b>	<b>1.06* (1.01, 1.11)</b>
Repeat victimization (vs not repeat)	<b>1.23*** (1.15, 1.32)</b>	<b>1.09*** (1.06, 1.13)</b>
Offender characteristics		



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Offender age (vs juvenile(s) only)		
Juveniles and adults	0.93 (0.56, 1.55)	0.94 (0.76, 1.16)
Adult(s) only	0.98 (0.77, 1.25)	0.95 (0.85, 1.07)
Victim age x offender age (vs victim age x juvenile(s) only)		
Victim age x juveniles and adults	1.01 (1.00, 1.02)	<b>1.01* (1.00, 1.01)</b>
Victim age x adult(s) only	<b>1.01† (1.00, 1.01)</b>	<b>1.01** (1.00, 1.01)</b>
Offender sex (vs male(s) only)		
Female(s) only	0.99 (0.83, 1.18)	<b>0.92† (0.85, 1.01)</b>
Mixed sex	<b>1.44*** (1.18, 1.76)</b>	<b>1.10† (0.99, 1.22)</b>
Victim sex x offender sex (vs male x male(s) only)		
Female x female(s) only	0.89 (0.73, 1.08)	0.96 (0.87, 1.06)
Female x mixed sex	0.84 (0.66, 1.07)	0.96 (0.85, 1.08)
Year fixed effects	X	X
Sample size	8,675	

*Note:* Boldface indicates statistical significance († $p < 0.10$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ).

NCVS, National Crime Victimization Survey; SFR, symptom frequency ratio; FIPV, Family/intimate partner violence.

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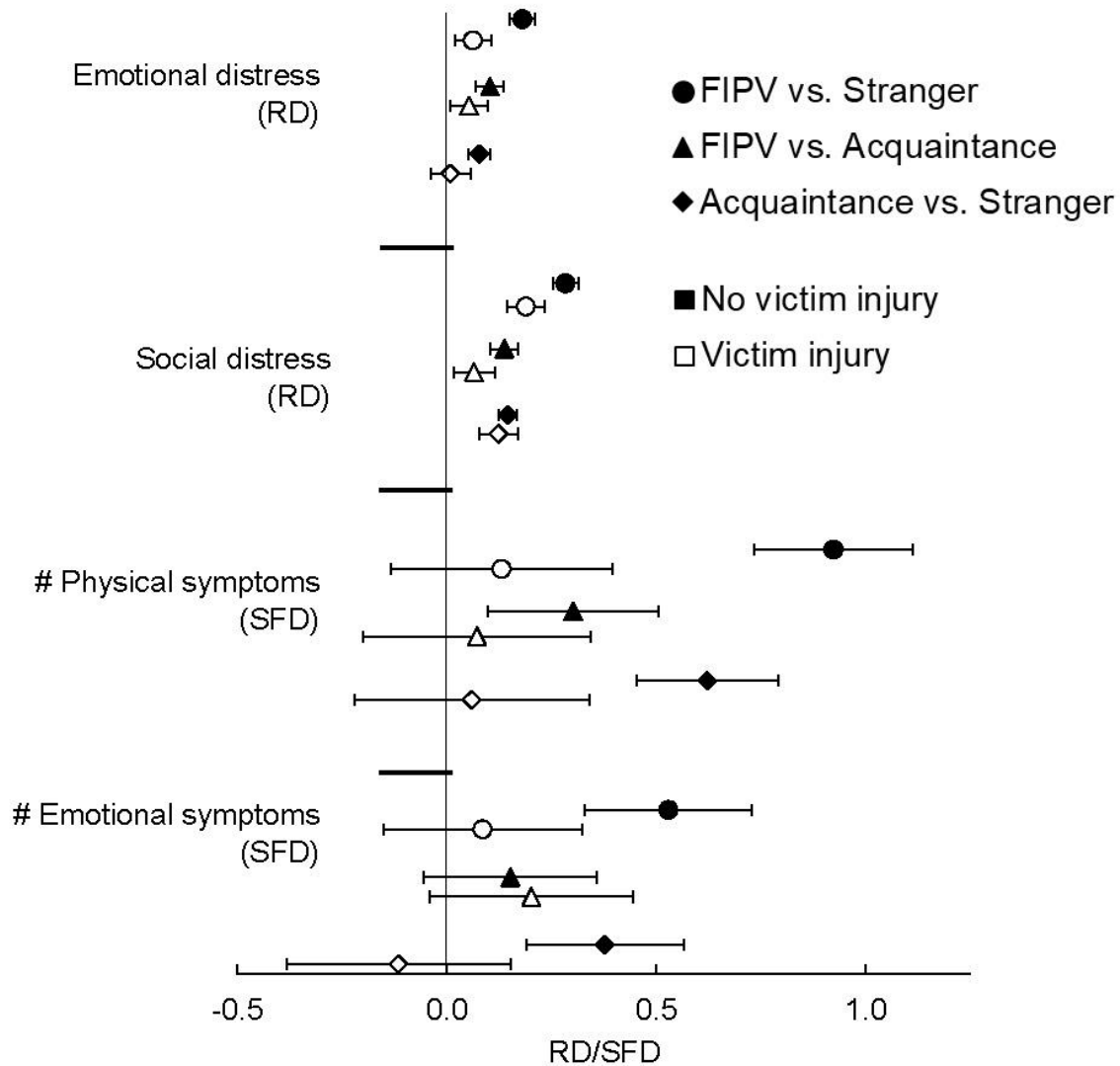
**Appendix Table 5.** Comparing Adjusted Relative Differences in Victims’ Adverse Health Outcomes Between Victim–Offender Relationships, by Victim Injury Status (Figure 3 Estimates)

Variable	ln(aRR)	95% CI		aRR
		LL	UL	
Emotional distress				
Acquaintance vs stranger				
Not injured	0.16	0.10	0.22	1.18
Injured	0.01	−0.06	0.09	1.01
FIPV vs acquaintance				
Not injured	0.18	0.12	0.24	1.20
Injured	0.08	0.02	0.15	1.08
FIPV vs stranger				
Not injured	0.35	0.29	0.40	1.41
Injured	0.09	0.03	0.16	1.10
Social distress				
Acquaintance vs stranger				
Not injured	0.75	0.64	0.86	2.11
Injured	0.35	0.21	0.48	1.41
FIPV vs acquaintance				
Not injured	0.39	0.29	0.49	1.48
Injured	0.14	0.03	0.25	1.15
FIPV vs stranger				
Not injured	1.14	1.02	1.25	3.12
Injured	0.49	0.36	0.62	1.63
Physical problems				
Acquaintance vs stranger				
Not injured	0.38	0.28	0.49	1.47
Injured	0.01	−0.09	0.12	1.01
FIPV vs acquaintance				
Not injured	0.14	0.04	0.23	1.14
Injured	0.03	−0.08	0.13	1.03
FIPV vs stranger				
Not injured	0.52	0.41	0.63	1.68
Injured	0.04	−0.06	0.14	1.04
Emotional problems				
Acquaintance vs stranger				
Not injured	0.09	0.04	0.14	1.09
Injured	−0.02	−0.08	0.03	0.98
FIPV vs acquaintance				
Not injured	0.03	−0.02	0.08	1.03
Injured	0.04	−0.01	0.09	1.04
FIPV vs stranger				
Not injured	0.12	0.07	0.17	1.13
Injured	0.02	−0.03	0.07	1.02

ln, natural log; LL, lower limit; UL, upper limit; aRR, adjusted risk ratio; FIPV, family/intimate partner violence.

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**Appendix Figure 3.** Comparing adjusted absolute differences in victims' adverse health outcomes between victim-offender relationships, by victim injury status.



*Note:* This figure compares the absolute differences in victims' adverse health outcomes between victim–offender relationship categories (i.e., FIPV vs Stranger, FIPV vs Acquaintance, and Acquaintance vs Stranger), after accounting for covariates. These differences are presented separately for violence involving no victim injury (black symbol) and violence involving victim injury (white symbol).

RD, adjusted risk difference; SFD, adjusted symptom frequency difference; FIPV, family and intimate partner violence.